PHENIX Technical Note

The Mode Bit Driver

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Abstract

A board was developed to drive many of the signals from the Granule Timing Module.

The Mode Bit Driver (MBD) board was developed as a simple replacement for the Programmable Pulse Generator (PPG). The board is a 9Ux120mm VME transition card identified as part number PHNX-019A. The front panel has voltage test points (Table 1), TTL outputs on LEMO connectors (Table 2), and differential ECL outputs on two 34 pin connectors (Tables 3 and 4). A single 50 pin connector brings the signals from the associated Granule Timing Module (GTM). There are three fuses on the board, described in Table 5.

Top	Color	Signal	Voltage
TP1	red	VCC	5V
TP2	yellow	VTT	3V
TP3	blue	VEE	-5V
TP4	white	VTE	-2V
TP5	black	GND	0V
Bottom			

Table 1: Test points.

Top	TTL Output
J4	PPG MB 16
J5	PPG MB 17
J6	PPG MB 18
J7	PPG MB 19
J8	PPG MB 20
J9	PPG MB 21
J10	PPG MB 22
J11	PPG MB 23
Bottom	

Table 2: Top 8 LEMO connectors.

Top	Diff ECL Output
J1:1-2	FEM MB 0
J1:3-4	FEM MB 1
J1:5-6	FEM MB 2
J1:7-8	FEM MB 3
J1:9-10	FEM MB 4
J1:11-12	FEM MB 5
J1:13-14	FEM MB 6
J1:15-16	FEM MB 7
J1:17-18	PPG MB 16
J1:19-20	PPG MB 17
J1:21-22	PPG MB 18
J1:23-24	PPG MB 19
J1:25-26	PPG MB 20
J1:27-28	PPG MB 21
J1:29-30	PPG MB 22
J1:31-32	PPG MB 23
Bottom	

Table 3: Middle connector.

Top	Diff ECL Output
J2:1-2	Beam Clock
J2:3-4	L1 Accept
J2:5-6	Timing Enable
J2:7-8	ENDAT 0
J2:9-10	ENDAT 1
J2:11-12	ENDAT 2
J2:13-14	ENDAT 3
J2:15-16	User Bit 0
J2:17-18	User Bit 1
J2:19-20	User Bit 2
J2:21-22	GL NUM 0
J2:23-24	GL NUM 1
J2:25-26	GL NUM 2
J2:27-28	GL NUM 3
J2:29-30	Beam Clock x4
J2:31-32	GLINK Serial Clock
Bottom	

Table 4: Bottom connector.

Fuse	Fuse Voltages	Fuse Size
F1	VCC and VTT	500 mA
F2	VEE and VTE	5A
F3	VTE	2A

Table 5: Fuses.